

ABSTRACT

An architecture and method for performing coarse-grain reservation of lightpaths within wavelength-division-multiplexed (WDM) based photonic burst switched (PBS) networks with variable time slot provisioning. The method employs a generalized multi-protocol label switched (GMPLS)-based PBS label that includes information identifying each lightpath segment in a selected lightpath route. A resource reservation request is passed between nodes during a forward traversal of the route, wherein each node is queried to determine whether it has transmission resources (*i.e.*, a route lightpath segment) available during a future timeframe. Soft reservations are made for each lightpath segment that is available using information contained in a corresponding label. If all lightpath segments for a selected route are available, the soft reservations turn into hard reservations. The stored reservations enable quick routing of control burst that are employed for routing data during scheduled use of the lightpaths.

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